

Artificial Turf Environmental Data

Each listing shows the reference first then the key information gleaned from that reference.

https://www.researchgate.net/profile/Nils-Nilsson-3/publication/242241995_Mapping_emissions_and_environmental_and_health_assessment_of_chemical_substances_in_artificial_turf/links/54114c5f0cf2df04e75d763e/Mapping-emissions-and-environmental-and-health-assessment-of-chemical-substances-in-artificial-turf.pdf

No significant damage to humans due to leaching in 2008. Drinking water levels are 20-800 times higher than threshold amounts. Some chemicals not studied.

<https://journals.ametsoc.org/view/journals/apme/49/3/2009jamc2198.1.xml>

Modeling the Thermal Effects of Artificial Turf on the Urban Environment

Southern CA (dry climate <12" annual rainfall)

Causes small increase in air temp but water savings reduce energy used for water production. From an energy standpoint this is a wash.

<https://www.mdpi.com/1660-4601/14/9/1050>

Artificial Turf: Contested Terrains for Precautionary Public Health with Particular Reference to Europe? 2017

little risk to sports people and children but some risk to installation workers. crumb rubber

<https://rucore.libraries.rutgers.edu/rutgers-lib/41407/PDF/1/>

Synthetic Turf Disposal and Health Concerns, 2010

Artificial turf, which is made of recycled rubber, has a lifespan typically between ten and twelve years. When that lifespan is up it can either be recycled or disposed of in landfills. Sometimes, the turf is recycled and reused, but when there is no need for it, there is no other option but to dispose of it into a landfill.

The chemicals can potentially be hazardous if they come into contact with a person's skin, are inhaled through the air, or are ingested through the water supply.

<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.562.9393&rep=rep1&type=pdf>

Estimating the Required Global Warming Offsets to Achieve a Carbon Neutral Synthetic Field Turf System Installation

Based on comparison of a 9,000-m² field, 4046.86 m²/Acre=2.224 acres in grass and Artificial Turf.

“The tree planting offset requirements to achieve a 10-year carbon neutral synthetic turf installation is estimated to be 1861 trees (±23%).”

That is 836.8 medium growth coniferous trees per acre. or one tree per 52 sf. (7.2'x7.2') which is not large enough to plant such a tree.

http://pstorage-acs-6854636.s3.amazonaws.com/3959830/es4044193_si_001.pdf

Environmental and Health Impacts of Artificial Turf: A Review, Stanford University

Only trace amounts of contaminants from ground rubber tires are detected in the environment, well below acceptable levels.

<https://www.mistrasportandoutdoors.se/globalassets/konferens--och-projektsajter/mistra/rapporter/final-report.pdf>

The development of artificial turf in Swedish football fields

It is estimated that 42,400 tons of microplastics are unintentionally released to the environment each year in the EU alone, and of this 38% comes from AT infill (Hann 2018).

the EU appears to be applying the precautionary principle, as is looking to ban or restrict the use of microplastic infill,

the artificial turf's impact came from the manufacture of the materials used, and its disposal at its end of life, corresponding to 65% of total emissions

the pressure for finding circular end-of-life solutions increases.

<https://artificialgrassrecyclers.com/artificial-turf-maintenance/#:~:text=Even%20with%20rigorous%20maintenance%2C%20it,warm%20spring%20and%20summer%20months.>

4. Look out for Fungi and Molds

Even with rigorous maintenance, it is possible to have fungus or mold spring up in your artificial turf – it's living outside, after all.

Mold, mildew, and fungus are powdery growths common in the outdoors, especially in the warm spring and summer months. They are found in every type of climate and location, as long as they have enough moisture to grow. If any pet waste has escaped your notice, especially, you might run the risk of having unwanted spores pop up.

In the event that this happens, you can clean the area with hydrogen peroxide. The hydrogen peroxide will remove any mold, kill the remaining invisible spores, and take care of any musty odors.

<https://www.lazylawn.co.uk/blog/pros-cons-of-artificial-grass/>

Artificial grass can get hot in extreme heat, however it should not cause any burns. Applying sand infill will help keep the turf cool.

<https://moldoff.com/combat-mold-on-artificial-turf/>

Artificial turf can be a magnet for mold! The blades of artificial turf are held upright by a silicon sand base. The base traps moisture and the grass provides shade, which are two main ingredients necessary for mold growth. Once mold gets a foothold in the sand, it begins to climb the grass blades. The roots penetrate into the blades and the mold feeds on the plastics. If you don't take care of the problem immediately, the mold problem will only continue to grow and be harder to control.

<https://www.youtube.com/watch?v=IHuGszcGshg>

Video showing professional artificial turf maintenance and its necessity.